



Appendix C – DNR 316(b) Determination for the OCER Station

Determination of Applicability of Cooling Water Intake Structure Regulations to the WEPCO Facilities at Oak Creek and Elm Road January 28, 2003

Conclusion

Under the only currently applicable regulations, the additional Elm Road units do not meet all the conditions for a new facility as required by 40 CFR 125.83. As such, the “new facility” 316(b) regulatory requirements contained in 40 CFR 125.84 to 125.88 do not apply. For purposes of designing an intake structure modification of the Oak Creek-Elm Road (OCER) stations, the Department will refer to those standards given under the proposed 40 CFR 125, Subpart J in the April 9, 2002 Federal Register (pp. 17220-17225), and specifically those proposed at 40 CFR 125.94(b)(3) as guidance for establishing Best Technology Available (BTA) under s. 283.31(6), Stats. The WPDES permit for this facility will include requirements to assure that BTA is provided for this electrical generating station. Once the proposed federal regulation is finalized, a determination will be made to verify that the intake structure design meets BTA under the standards of the federal regulation and s. 283.31(6), Stats.

Introduction

On August 28, 2002, Wisconsin Energy Corporation (WE) requested that the U.S. Environmental Protection Agency (U.S. EPA) make a determination of applicability of s. 316(b) regulations (Clean Water Act) for the Oak Creek Power Plant and the proposed Elm Road Generating Station (see Attachment A). Section 316(b) requires that “the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.” Prior to late 2001, neither U.S. EPA nor the State of Wisconsin had adopted rules further defining this standard.

The primary question in this WE request was whether the construction of additional generating capacity at Oak Creek Power Plant and the Elm Road Generating Station site requires application of the “new

facility” cooling water intake regulations published by U.S. EPA on December 18, 2001. If, as concluded by WE, the modification to this generating station is not a new facility in the context of this final regulation, then the best technology (BTA) standards and requirements in that regulation do not apply. EPA has proposed BTA regulations that will apply to “existing facilities” under s. 316(b) and a determination must be made regarding the applicability of those proposed rules to this facility including the modifications proposed by WE. EPA’s schedule for promulgation of final rules for existing facilities is February 16, 2004.

On October 30, 2002, U.S. EPA responded to WE that this determination of applicability is part of the delegated permitting process under the National Pollutant Discharge Elimination System (see Attachment B). They stated that the Wisconsin DNR (in consultation with U.S. EPA-Region 5) should make this determination. This report contains the Department’s review of the applicability of s. 316(b) regulations to the OCER facility.

Statutory Requirements

Section 316(b) of the Clean Water Act states:

***Cooling water intake structures.** Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. (33 U.S. Code Sec. 1326)*

Similarly, chapter 283 of the Wisconsin Statutes contain the following provision that implements the federal law under the authority of the Wisconsin Pollutant Discharge Elimination System program. Section 283.31(6) states:

Any permit issued by the department under this chapter which by its terms limits the discharge of one or more pollutants into the waters of the state may require that the location, design, construction and capacity of water intake structures reflect the best technology available for minimizing environmental impact.

Application of s. 316(b) to the Oak Creek Power Plant

The Oak Creek Power plant is located on the Lake Michigan shoreline in the City of Oak Creek, just south of the City of Milwaukee. As noted in the WE letter, this facility operated as a 9 unit plant until the late 1980s. At that time, Units 1-4 were retired; Units 5-9 continue to operate. The cooling water intake at this location is at the shoreline and consists of a channel between the coal dock to the north and a breakwater structure on the south. Cooling water discharge is also at the shoreline south of the aforementioned breakwater.

In 1976, an investigation was conducted by Wisconsin Electric Power Company and a report submitted to the Department on the aquatic life impacts caused by the intake at the Oak Creek Power Plant. The report concluded (based on a one-year study of the power generation and aquatic life populations that existed at the time) that “it is apparent that entrapment of adult and juvenile fish, ichthyoplankton, and benthic macroinvertebrates in the cooling water intake system of Oak Creek Power Plant causes at most

a very local reduction in abundance of these organisms. The impact on the environment must be considered to be minimal.”¹³⁰ In an April 15, 1977 letter to Wisconsin Electric Power Company, the Department concurred with this conclusion. The Department has not reevaluated this conclusion since 1977.

Proposed Modifications to the Oak Creek Power Plant and Elm Road Generating Station

Wisconsin Energy Corporation’s proposal for modifying the generating facilities at their Oak Creek site includes staged construction and operation as stated in their August 28, 2002, letter. Two additional coal-fired units and an integrated gasification combined cycle (IGCC) unit are proposed to be built on shoreline property contiguous or adjacent to the existing facility. One coal-fired unit would be constructed and be in operation in 2007, the second coal-fired unit would be operational in 2009 and the IGCC would come on line in about 2011. It is proposed that the additional units will share some of the existing (or relocated on the same property) coal handling facilities with expansions and modifications, as necessary. Tie-in to the existing power distribution system would also be shared on the site, again with necessary modifications and expansion of existing equipment.

With respect to the intakes, the first of the two new coal-fired units are proposed to share the existing intake structure with Units 5-9 while the new intake structure for the entire facility is being constructed. The proposal is to have both the existing and additional units use a single cooling water intake structure when in full operation.

S. 316(b) Regulations – New Facilities

Section 316(b) regulations for new facilities were published by U.S. EPA on December 18, 2001. Within that regulation, U.S. EPA defined a new facility as follows (see 40 CFR 125.83):

*New facility means any building, structure, facility, or installation that meets the definition of a "new source" or "new discharger" in 40 CFR 122.2 and 122.29(b)(1), (2), and (4) and is a greenfield or stand-alone facility; commences construction after January 17, 2002; and uses either a newly constructed cooling water intake structure, or an existing cooling water intake structure whose design capacity is increased to accommodate the intake of additional cooling water. New facilities include only "greenfield" and "stand-alone" facilities. A greenfield facility is a facility that is constructed at a site at which no other source is located, or that totally replaces the process or production equipment at an existing facility (see 40 CFR 122.29(b)(1)(i) and (ii)). A stand-alone facility is a new, separate facility that is constructed on property where an existing facility is located and whose processes are substantially independent of the existing facility at the same site (see 40 CFR 122.29(b)(1)(iii)). **New facility does not include new units that are added to a facility for purposes of the same general industrial operation (for example, a new peaking unit at an electrical generating station).***

(1) Examples of "new facilities" include, but are not limited to: the following scenarios:

(i) A new facility is constructed on a site that has never been used for industrial or commercial activity. It has a new cooling water intake structure for its own use.

¹³⁰ “Oak Creek Power Plant Final Report on Intake Monitoring Studies Performed by Wisconsin Electric Power Company in Fulfillment of Conditions of WPDES Permit Number WI-0000914”, June 1, 1976.

(ii) A facility is demolished and another facility is constructed in its place. The newly-constructed facility uses the original facility's cooling water intake structure, but modifies it to increase the design capacity to accommodate the intake of additional cooling water.

(iii) A facility is constructed on the same property as an existing facility, but is a separate and independent industrial operation. The cooling water intake structure used by the original facility is modified by constructing a new intake bay for the use of the newly constructed facility or is otherwise modified to increase the intake capacity for the new facility.

(2) Examples of facilities that would not be considered a "new facility" include, but are not limited to, the following scenarios:

(i) A facility in commercial or industrial operation is modified and either continues to use its original cooling water intake structure or uses a new or modified cooling water intake structure.

(ii) A facility has an existing intake structure. Another facility (a separate and independent industrial operation), is constructed on the same property and connects to the facility's cooling water intake structure behind the intake pumps, and the design capacity of the cooling water intake structure has not been increased. This facility would not be considered a "new facility" even if routine maintenance or repairs that do not increase the design capacity were performed on the intake structure. (emphasis added)

Elsewhere in the Federal Register preamble published when this regulation was made final, U.S. EPA includes the following explanatory discussion:

"Under 122.29(b), a source is a new source if it meets the definition of a new source in 122.2... and it meets any of three conditions... The first is that the source is constructed at a site at which no other source is located... The second is that the source totally replaces the process or production equipment that causes a discharge at an existing facility... The third is that the new source's processes are substantially independent of any existing source at the same site." (p. 65285)

"... the rule applies to greenfield and stand-alone facilities or those whose processes are substantially independent of an existing facility at the same site." (p. 65286)

"The definition of a new facility in the final rule applies to a facility that is repowered only if the existing facility has been demolished and another facility is constructed in its place, and modifies the existing cooling water intake structure to increase the design intake capacity." (p. 65286)

Section 316(b) Regulations – Existing Facilities

On April 9, 2002, U.S. EPA published proposed regulation to establish requirements for cooling water intake structures for existing (phase II) facilities under s. 316(b). Under a consent decree, U.S. EPA is required to publish a final regulation for existing facilities by February 16, 2004. These regulations, based on the volume of intake flow, would apply to the existing Oak Creek Power Plant, even without the proposed modifications.

In this proposal, U.S. EPA has defined existing facilities as follows:

"Existing facility means any facility that commenced construction before January 17, 2002; and

(1) Any modification of such a facility;

(2) Any addition of a unit at such a facility for purposes of the same industrial operation;

- (3) *Any addition of a unit at such a facility for purposes of a different industrial operation, if the additional unit uses an existing cooling water intake structure and the design capacity of the intake structure is not increased; or*
- (4) *Any facility constructed in place of such a facility, if the newly constructed facility uses an existing cooling water intake structure whose design intake flow is not increased to accommodate the intake of additional cooling water.” (p. 17221)*

Within the preamble to this proposed regulation, they have included the following additional descriptions for existing facilities:

*EPA has specified that any modification of a facility that commenced construction before January 17, 2002 remains an existing facility for purposes of this rule to clarify that significant changes to such a facility would not, absent other conditions, cause the facility to be a “new facility” subject to the Phase I rule. In addition, the **proposed** definition specifies that any addition of a unit at a facility that commenced construction before January 17, 2002 for purposes of the same industrial operation as the existing facility would continue to be defined as an existing facility... Under this **proposed** rule certain forms of repowering could be undertaken by an existing power generating facility that uses a cooling water **intake** structure and it would remain subject to regulation as a Phase II existing facility. For example, the following scenarios would be existing facilities under the **proposed** rule: An existing power generating facility undergoes a modification of its process short of total replacement of the process and concurrently increases the design capacity of its existing cooling water **intake** structures; An existing power generating facility builds a new process for purposes of the same industrial operation and concurrently increases the design capacity of its existing cooling water **intake** structures... Thus, in most situations, repowering an existing power generating facility would be addressed under this **proposed** rule... (p. 17128)*

Discussion

The Department believes that the current intake at this facility may not meet currently acceptable standards for (BTA). Therefore, a new intake design or significant modifications to the existing intake operation may be necessary even if only the current units continue to operate. This review is based on the assumption that intake modifications will, as described previously, occur simultaneously with construction of the new Elm Road units.¹³¹

This determination of applicability is being made only to establish what specific performance standards will be used for the intake design at this facility, including the additional units. These performance standards will use the narrow definitions and application of 316(b), current federal regulations, and corresponding state law. In making this decision no determination has been made regarding the economic and environmental efficacy of this entire project or other aspects associated with the planned modifications at this facility. Any other factors associated with construction of this facility will be based on applicable regulatory standards.

The three additional coal-fueled units built at either the primary or alternate Elm Road sites will be within approximately 2,000 feet north or south of the existing units. WE plans to have the existing units and the new units, when the project is completed, share the intake with the existing units. The outfall location for

¹³¹ For reasons of planning, design and construction and costs, modifications to the intake structure will be done simultaneously with the construction of the additional units.

the new units has been proposed north of the existing coal dock, directly to Lake Michigan. Some aspects associated with operation of the Elm Road units are not directly connected to or dependent on the existing facility.

Following is the Department's determination of the applicability of the "new facility" definition in 40 CFR 125.83 to the additional Elm Road units at this site:

1. This is a "new source" as defined in 40 CFR 122.2, because it will be constructed after promulgation of standards under section 306 of the Clean Water Act. It is not, however, a "new facility" for purposes of 316(b).
2. This is not a "greenfield" facility, because an existing power generating station is already on this site.¹³²
3. This is not a stand-alone facility because, as defined in 40 CFR 125.83, the EPA regulation for a stand-alone facility "... does not include new units that are added to a facility for purposes of the same general industrial operation..." (i.e., the generation of electricity). Furthermore, there will be an integration of the existing and additional generating units. Common facilities shared between the existing and additional units will include the cooling water intake structure, coal delivery and handling systems and the electrical switchyard and substation. Most notably, the existing and additional units will share a common intake structure modified from its current configuration to meet operational needs and BTA.
4. Under current plans, the intake structure to supply water to existing units will be increased in capacity to accommodate the intake of additional water.

Therefore, under the only currently applicable regulations, the additional Elm Road units do not meet all the conditions for a new facility as required by 40 CFR 125.83. As such, the "new facility" 316(b) regulatory requirements contained in 40 CFR 125.84 to .88 do not apply.

If, as concluded above, the OCER proposal is not a new facility, then it must be an existing facility under the definition that states that an "Existing facility means any facility that commenced construction before January 17, 2002; and... (2) any addition of a unit at such a facility for purposes of the same industrial operation..." (40 CFR 125.93, proposed). In the preamble to this proposed regulation, it further explains, by example, that an existing facility is "an existing power generating facility [that] builds a new process for purposes of the same industrial operation and concurrently increases the design capacity of its existing cooling water intake structures" (p. 17128). The proposal to modify the intake structure to accommodate both the new and existing units further establishes the rationale for treating this permittee as an existing facility under 316(b) regulations.

In a prior instance, U.S. EPA determined that the addition of a unit at an existing power plant in San Francisco using the same intake structure was not a new facility. A memo dated January 11, 2003 from EPA's Engineering and Analysis Division to the Region 9 Water Division Director, states: "... addition of a new power generating unit or units at an electrical power generating station would not be a "new facility" under the CWA Section 316(b) rule for "new facilities."" The additional units at the OCER facility are, based on information available, similar to those for this power facility in California.

¹³² Under 40 CFR 122.2: "Site" means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

Applicable requirements

No specific, final federal or state regulations are in place for facilities that are not defined as new facilities. Therefore, only the general statutory requirement for BTA contained in 316(b), CWA, and s. 283.31(6), Stats., apply to the intake at this site.

However, the Department believes that the existing intake for this permittee does not meet the statutory standard to "minimize environmental impact" (s. 283.31(6), Stats.) and changes are necessary to meet BTA. Regardless of the characterization of the additional units as new or existing under the 316(b) regulations, the intake structure must attain this BTA standard. Absent a specific federal regulatory standard, the Department must, therefore, establish the criteria or performance standard that will be used to design an intake structure that will meet this BTA statutory requirement. Accordingly, the Department believes that U.S. EPA's proposed performance standards for intakes at existing facilities contained in the Federal Register of April 9, 2002 are the most reasonable available criteria for BTA. No data currently available to the Department demonstrates that another performance standard better represents BTA for this type of intake system.

Therefore, for purposes of designing the intake structure for the OCER stations, the Department will require compliance with those standards given under the proposed 40 CFR 125, Subpart J in the April 9, 2002 Federal Register (pp. 17220-17225). These standards, once final regulations are promulgated, will be used to establish BTA under s. 283.31(6), Stats. A site-specific BTA determination for the OCER facility, using specifically the provision at proposed 40 CFR 125.94(b)(3), will be made as part of the WPDES permitting process using the proposed standards to assure environmental impacts caused by the intake are minimized.

Wisconsin Energy has proposed to attain the objectives of BTA by construction of an off-shore intake to replace the existing intake structure at the shoreline. The conclusions presented here are not a determination of whether such an intake will meet the applicable criteria for Best Technology Available. Specific design parameters will be established during the Department's review of this project to assure that any intake structure meets the statutory requirement for such facilities including any final state or federal regulations applicable at the time.

Other Related Issues

This determination of applicability is not intended to have any effect on the determination of whether this facility is a new source or new discharger for the purposes of regulating the discharge of pollutants in the WPDES permit. The discharge from the facility will be required, under their WPDES permit, to meet effluent limitations derived from state water quality standards including criteria for temperature. Temperature water quality standards revisions are currently under development and these new standards will, when formally adopted, apply to this facility.

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